

## **SCIENCE PANEL CONCLUSIONS REGARDING ACTION AGENDA IMPLICATIONS OF THE SCIENCE UPDATE**

Science Panel Review, December 2010

### *How Much Do We Know?*

**There are sufficient scientific data and tools to identify indicators and to set initial targets for some or all indicators.** Steps in the process include 1) finalizing specific indicator metrics (e.g., what aspect[s] of “salmon” become indicators), 2) determining how existing monitoring program metrics might be modified to serve more broadly as ecosystem health indicators, 3) developing sampling protocols and then identifying responsible parties for data collection, analysis, etc, and 4) identifying funding sources where necessary.

### *Setting Targets*

**The risk associated with setting targets for indicators is largely a function of scientific uncertainty, and ramifications of being “wrong”. The first iteration of target setting should commence immediately and consider ecological and social (human health and well being) tradeoffs by simultaneously examining, and providing targets for as many of the 20 dashboard indicators as possible.** The PSSU suggests target setting should be done in a way that stakeholders’ “confront” tradeoffs among different ecosystem states represented by different targets. This approach would provide a first glimpse of inherent tradeoffs among indicators, even if some or most of those targets take the form of directional arrows for the first iteration. (We are smart enough to know the arrow’s direction at this point).

**Key uncertainties identified during target setting, threats analysis, and implementation strategies should be highlighted as priorities in the next Biennial Science Work Plan.** For this process to be most effective, we will need feedback by affected parties on where to target natural and social science to advance the goals of the action agenda.

### *Assessing Threats*

**There is an urgent need to continue to conduct a comprehensive analysis of threats,** which includes 1) a process to link threats to ecosystem function, 2) a careful prioritization of threats for both the marine and non-marine portions of the ecosystem as well as the human well-being components of the system, and 3) an assessment of effective strategies to address key threats. The PSP needs to sanction and help find funding for this work as soon as possible in time for crafting the next Action Agenda, while at the same time supporting the longer term development of synthetic models and other tools that allows us to better understand the way the natural and human systems work across the entire ecosystem. Importantly this work would include collecting more information regarding people’s attitudes, how they make decisions related to their actions, and the impacts they have on Puget Sound.

### *Role of Social Science*

**Work on social science pieces of the recovery strategy is a priority: the Partnership needs to organize social scientists and staff to advance this work.** An effective way to engage people in setting targets is to communicate to them directly. In terms of engaging the public, there are a variety of social science techniques available to elicit public opinions about the environment. Most of these techniques rely on structured surveys to understand people's preferences in situations where they are forced to recognize ecological, social, and legal constraints or trade-offs. Ideally, the timing of this work precedes or coincides with target setting but this may not be possible for the first round of target setting.

**The social component should begin assessing the market and non-market value of ecosystem goods and services, and developing mechanisms for evaluating trade-offs among different management options in ways that provide a direct tie between ecosystem services and current decision making.** Knowing the range of factors affecting service production and delivery reveals how management decisions or other drivers will affect the delivery of services. Because, ecosystem services represent a dynamic connection between social and ecological systems, it is important to understand how humans respond to changes in the price of commodities that depend on ecosystem services or changes in access (e.g., beach closures), and how such responses in turn affect the ecosystem.

### *Science–Policy Interactions*

**While beginning to get timely input from the public at large, we may need stakeholder input from the LC, ECB, cross program work group or some combination of those entities.** There remain gaps in our knowledge and understanding of the ecosystem, requiring a clear process for prioritizing scientific work besides using stakeholder processes to help identify where disagreement (on scientific underpinnings) of management issues arise. Further, it is currently unclear which policy body serves to vet issues and identify potential pitfalls and disagreements.

Some data gaps simply reflect the complexity of the system, and the decision to use an ecosystem-based management philosophy. For example, 20 dashboard indicators are not comprehensive enough to capture all of the information related to the 6 PSP goals. Moreover, the fewer indicators one uses, the greater the risk of being wrong about the state of the ecosystem. Thus while reporting ecosystem health (to the federal government) may be limited to 20 dashboard indicators, other non-dashboard indicators are important to maintain through time. **Likewise, the PSP needs to continue to support targeted, policy relevant studies that could affect the recovery strategies and timing.** Ongoing issues remain unresolved. The tension between using a science-based recovery strategy and meeting the 2020 deadline for recovery will require better communication between the SP and PSP leadership. The SP cannot logically be considered an impediment to making progress and at the same time critical to success. **The LC and ECB should know that the SP can endorse (and be helpful) on a more ambitious timeline for target setting, threats assessment, and implementation strategies under the assumption (and inherent) risk that those processes may be less supported by scientific information, especially if there is a concomitant investment for improving our knowledge as we go.**